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A revision of *Trisunius* III. Three new species from North India and Nepal, and additional records (Coleoptera: Staphylinidae: Paederinae)

V. ASSING

A b s t r a c t : Three species of the medonine genus *Trisunius* ASSING 2011 from Nepal and North India are described and illustrated: *Trisunius volans* nov.sp. (East Nepal), *T. borailicus* nov.sp. (India: Assam), and *T. tenuincisus* nov.sp. (India: Meghalaya). Additional records of three species from the Himalaya and China are reported. The distributions of nine species are mapped. An updated catalogue of the 17 species of *Trisunius* is provided.

K e y w o r d s : Coleoptera, Staphylinidae, Paederinae, *Trisunius*, Palaearctic region, India, Nepal, China, taxonomy, new species, distribution, new records, catalogue.

Introduction

The recently described medonine genus *Trisunius* ASSING 2011 previously included fourteen species distributed from the Himalaya across China to Thailand. Five of the species had been recorded from the Himalaya (Nepal, North India), eight from the Chinese province Yunnan, and one from Thailand (ASSING 2011, 2012).

The present contribution is primarily based on material found while browsing the collections of the Muséum d'Histoire Naturelle, Geneva, and of the Naturhistorisches Museum Basel. Additional material was discovered among Paederinae from the Naturkundemuseum Erfurt, and one species was collected during a joint field trip to China conducted by Michael Schülke, David Wrase (both Berlin), and the author. An examination of this material yielded another three undescribed species, as well as several records of particular zoogeographic interest.

Material and methods

The material treated in this study is deposited in the following public institutions and private collections:

MHNG ..... Muséum d'Histoire Naturelle, Genève (G. Cuccodoro)

NHMB ..... Naturhistorisches Museum Basel (M. Geiser, I. Zürcher)

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NME ..... Naturkundemuseum Erfurt (M. Hartmann)
cAss..... author´s private collection
cSch..... private collection Michael Schülke, Berlin

The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). A digital camera (Nikon Coolpix 995) was used for the photographs. The maps were created using MapCreator 2.0 (primap) software.

Body length was measured from the anterior margin of the mandibles (in resting position) to the abdominal apex, the length of the forebody from the anterior margin of the mandibles to the posterior margin of the elytra, head length from the anterior margin of the frons to the posterior margin of the head, elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra, and the length of the aedeagus from the apex of the ventral process to the base of the aedeagal capsule. The "parameral" side (i.e., the side where the sperm duct enters) is referred to as the ventral, the opposite side as the dorsal aspect.

Species descriptions and new records

Trisunius monticola (CAMERON 1931) (Map 1)

Material examined: India: 2 exs., Darjeeling, Dello, 1620 m, 5.IV.1979, leg. Bhakta (NHMB); 2 exs., Darjeeling, Monshong, 1400 m, 13.IX.1980, leg. Bhakta (NHMB, cAss); 1♀, Sikkim, Bhakim, 2600 m, 27.VIII.1980, leg. Bhakta (NHMB). Nepal: 3 exs., E-Nepal, Lukla, 2900 m, 14.VI.1979, leg. Bhakta (NHMB, cAss); 1 ex., E-Nepal, Khumbu, Tengboche, 3470 m, 11.VI.1979, leg. Bhakta (cAss); 1♀, E-Nepal, Jubing, 1300 m, 20.VI.1979, leg. Bhakta (NHMB).

Comment: This species was previously known only from Uttaranchal (ASSING 2011). The above specimens represent the first records from Nepal, West Bengal, and Sikkim. They considerably expand the known distribution towards the east (Map 1).

Trisunius opaciceps ASSING 2012 (Map 1)

Material examined: Nepal: 1♀, Manaslu, S Bara Pokhari, 2300 m, 8.IV.2009, leg. Schmidt (NME).

Comment: The known distribution of this recently described species is confined to the Manaslu range in central Nepal (Map 1).

Trisunius volans nov.sp. (Figs 1-6, Map 1)

Type material: Holotype ♂: "Jubing, 1300 m, 20.VI.1979 / O. Nepal, Bhakta B. / Holotypus ♂ *Trisunius volans* sp. n. det. V. Assing 2013" (NHMB).

Etymology: The specific epithet is the present participle of the Latin verb volare (to fly) and refers to the long elytra, the external character best distinguishing this species from other Himalayan species of the genus.

Description: Body length 3.1 mm; length of forebody 1.7 mm. Habitus as in Fig. 1. Coloration: forebody reddish-brown, elytra with paler posterior margins; abdomen brown with paler apex; legs and antennae reddish-yellow.

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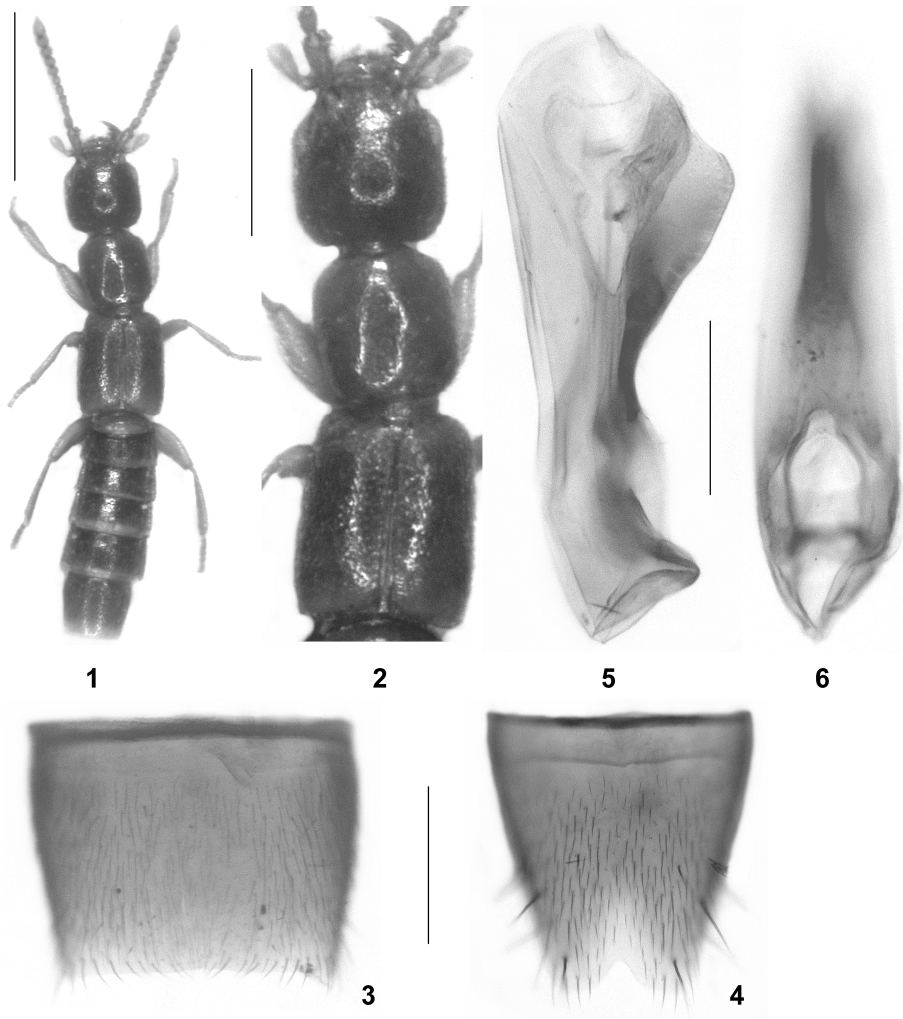

Figs 1-6: *Trisunius volans* nov.sp.: (**1**) habitus; (**2**) forebody; (**3**) male sternite VII; (**4**) male sternite VIII; (**5-6**) aedeagus in lateral and in ventral view. Scale bars: 1: 1.0 mm; 2: 0.5 mm; 3-4: 0.2 mm; 5-6: 0.1 mm.

Head (Fig. 2) weakly oblong, 1.03 times as long as broad; lateral margins behind eyes subparallel in dorsal view; punctation fine and dense; interstices without distinct microsculpture. Eyes relatively large, slightly more than half as long as postocular region in dorsal view. Antenna 0.8 mm long.

Pronotum (Fig. 2) 1.05 times as long as broad and 0.95 times as broad as head; lateral margins very weakly converging posteriad in dorsal view; punctation fine and rather dense, but somewhat less dense than that of head; interstices without distinct microsculpture.

Elytra (Fig. 2) rather long, approximately 1.15 times as long as pronotum; punctation

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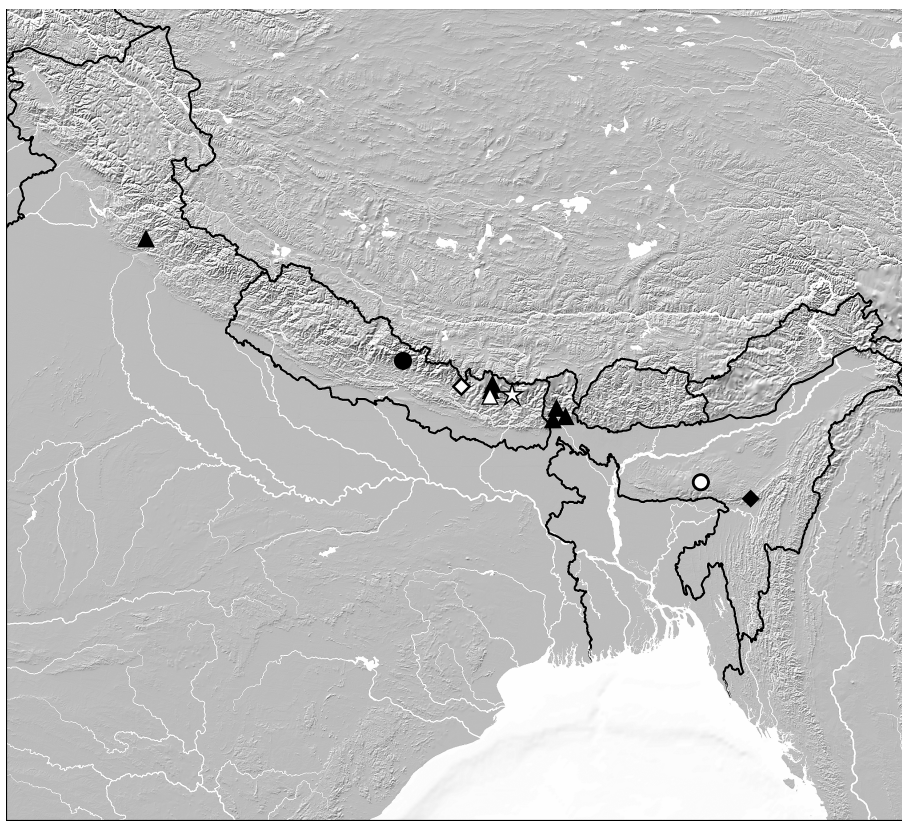
fine and dense; interstices without distinct microsculpture. Hind wings fully developed. Metatarsomere I approximately as long as II.

Abdomen narrower than elytra; punctation fine and very dense; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Fig. 3) moderately transverse, pubescence not distinctly modified, posterior margin truncate; sternite VIII (Fig. 4) approximately as long as broad, posterior excision rather small and V-shaped; aedeagus (Figs 5-6) small, 0.3 mm long; ventral process laterally compressed.

Comparative notes: The new species differs from the externally similar and sympatric *T. monticola* particularly by the longer and relatively broader elytra, the much smaller posterior excision of the male sternite VIII, as well as by the completely different morphology of the aedeagus. For illustrations of *T. monticola* see ASSING (2011).



Map 1: Distribution of the genus *Trisunius* in the Himalaya and in North India. *Trisunius monticola* (filled and open triangles); *T. volans* (open triangle); *T. manasluensis* and *T. opaciceps* (filled circle); *T. perpusillus* (open diamond); *T. alesi* (star); *T. tenuincisus* (open circle); *T. borailicus* (filled diamond).

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Distribution and natural history: The type locality is situated in eastern Nepal (Map 1) at an altitude of 1300 m. The holotype was collected together with a female of *T. monticola*.

***Trisunius borailicus* nov.sp.** (Figs 7-12, Map 1)

Type material: Holotype ♂: "India: Assam, North #8a, Cachar Hills dist., Mt Borail, Borail Peak, 1700 m, 19.x.2005, 25°06'43"N, 93°03'11"E / sifting bamboo #8a, leaf litter in mountain rain forest, Cuccudoro & Marletta / Holotypus ♂ *Trisunius borailicus* sp.n. det. V. Assing 2013" (MHNG). Paratypes: 3♀♀: same data as holotype (MHNG, cAss).

Etymology: The specific epithet is an adjective derived from the name of the mountain where the species was discovered.

Description: Body length 2.7-3.2 mm; length of forebody 1.5-1.6 mm. Habitus as in Fig. 7. Coloration: head and abdomen brown; pronotum and elytra dark-reddish to reddish-brown; legs yellowish-red; antennae reddish.

Head (Fig. 8) approximately as long as broad; lateral margins behind eyes subparallel or convex in dorsal view; punctation fine and moderately sparse; interstices with very shallow microsculpture, broader than diameter of punctures. Eyes small, approximately one third as long as postocular region in dorsal view. Antenna 0.8-0.9 mm long.

Pronotum (Fig. 8) 1.05-1.10 times as long as broad and 0.90-0.95 times as broad as head; lateral margins converging posteriad in dorsal view; punctation rather dense and fine, but more distinct than that of head; midline narrowly impunctate; interstices without distinct microsculpture.

Elytra (Fig. 8) short, approximately 0.75 times as long as pronotum; punctation fine and dense; interstices without distinct microsculpture. Hind wings completely reduced. Metatarsomere I approximately as long as II.

Abdomen distinctly broader than elytra; punctation fine and very dense; posterior margin of tergite VII without palisade fringe.

♂: sternite VII (Fig. 9) moderately transverse, pubescence weakly modified, posterior margin weakly concave in the middle, with transverse row of long dark submarginal setae; sternite VIII (Fig. 10) weakly transverse, posterior excision narrowly V-shaped and moderately deep; aedeagus (Figs 11-12) small, 0.33 mm long; ventral process laterally compressed.

Comparative notes: In external (size, short wings, etc.) and the male sexual characters, *T. borailicus* somewhat resembles *T. manasluensis* ASSING 2012 from the Manaslu range in Nepal, but differs by the more distinctly concave posterior margin of the male sternite VII, the distinctly narrower posterior excision of the less transverse male sternite VIII, as well as by the completely different shape of the ventral process of the aedeagus. For illustrations of *T. manasluensis* see ASSING (2012).

Distribution and natural history: The type locality is situated in Assam province, northeastern India (Map 1). The specimens were sifted from bamboo litter in a mountain rain forest at an altitude of 1700 m.

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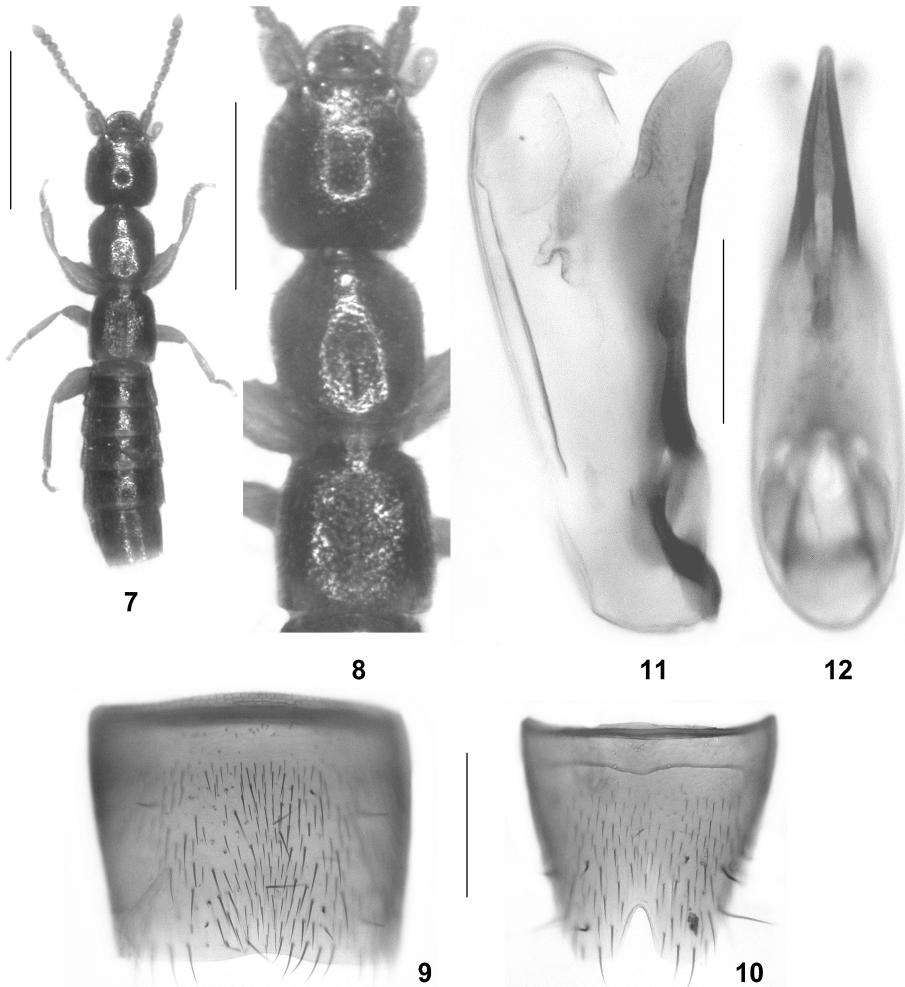

Figs 7-12: *Trisunius borailicus* nov.sp.: (**7**) habitus; (**8**) forebody; (**9**) male sternite VII; (**10**) male sternite VIII; (**11-12**) aedeagus in lateral and in ventral view. Scale bars: 7: 1.0 mm; 8: 0.5 mm; 9-10: 0.2 mm; 11-12: 0.1 mm.

***Trisunius tenuincisus* nov.sp.** (Figs 13-18, Map 1)

T y p e m a t e r i a l : Holotype ♂: "India: Meghalaya #9d, East Khasi Hills dist., Shillong Peak, 1900 m, 21.X.2004, 25°32'20"N, 91°51'03"E / Leg. G. Cuccodoro, C. Carlton, R. Leschen & D. Erne / Holotypus ♂ *Trisunius tenuincisus* sp.n. det. V. Assing 2013" (MHNG). Paratype ♀: same data as holotype (cAss).

E t y m o l o g y : The specific epithet is an adjective composed of the Latin adjectives tenuis (narrow) and incisus (incised). It alludes to the conspicuously narrow posterior incision of the male sternite VIII.

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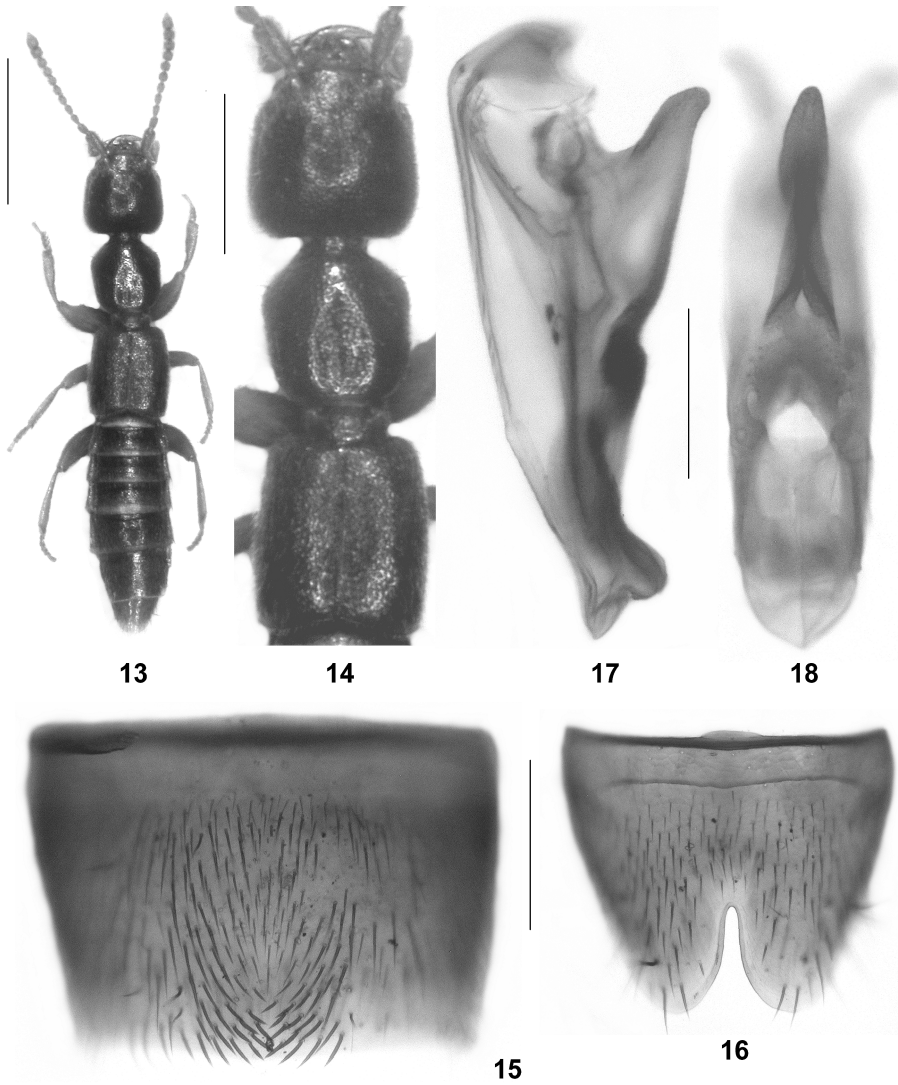

Figs 13-18: *Trisunius tenuincisus* nov.sp.: (**13**) habitus; (**14**) forebody; (**15**) male sternite VII; (**16**) male sternite VIII; (**17-18**) aedeagus in lateral and in ventral view. Scale bars: 13: 1.0 mm; 14: 0.5 mm; 15-16: 0.2 mm; 17-18: 0.1 mm.

D e s c r i p t i o n : Body length 3.2-3.5 mm; length of forebody 1.8-1.9 mm. Habitus as in Fig. 13. Coloration: body reddish-brown to dark-brown; legs yellowish-red to brown; antennae reddish.

Head (Fig. 14) approximately as long as broad (weakly oblong to weakly transverse); lateral margins behind eyes subparallel in dorsal view; punctation fine and dense; interstices with shallow microsculpture, narrower than diameter of punctures (except in

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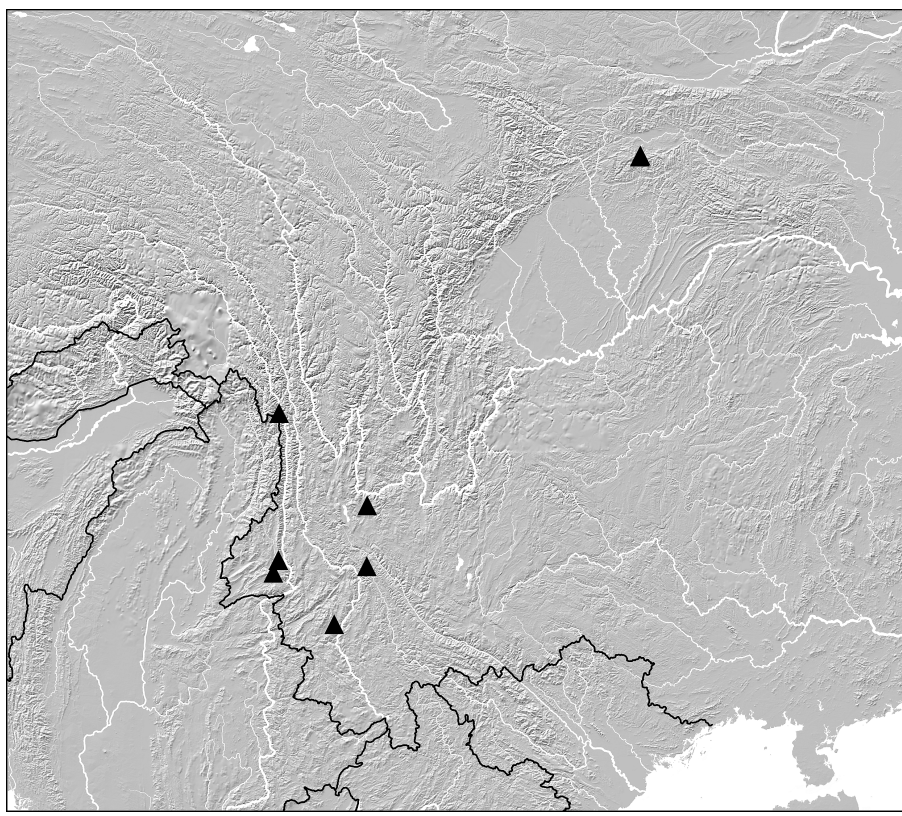
median dorsal portion). Eyes of moderate size and weakly convex, nearly half as long as postocular region in dorsal view. Antenna approximately 1.0 mm long.

Pronotum (Fig. 14) approximately 1.05 times as long as broad and approximately 0.9 times as broad as head; lateral margins converging posteriad in dorsal view; punctation dense and moderately fine, more distinct than that of head; midline narrowly impunctate; interstices without microsculpture.

Elytra (Fig. 14) approximately as long as pronotum; punctation fine and dense; interstices without distinct microsculpture. Hind wings apparently fully developed. Metatarsomere I approximately as long as II.

Abdomen approximately as broad as elytra; punctation fine and very dense; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Fig. 15) transverse, with cluster of stout black setae in postero-median portion, posterior margin weakly convex in the middle; sternite VIII (Fig. 16) distinctly transverse, posterior excision conspicuously narrow and deep; aedeagus (Figs 17-18) small, 0.33 mm long; ventral process laterally compressed.



Map 2: Distribution of *Trisunius cultellatus* in China.

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Comparative notes: This species is readily distinguished from all its congeners by the chaetotaxy of the male sternite VII, the narrower posterior incision of the male sternite VIII, as well as by the shape of the aedeagus. For illustrations of the male sexual characters of other *Trisunius* species see ASSING (2011, 2012).

Distribution and natural history: The type locality is situated in Meghalaya, northeastern India (Map 1). The specimens were collected at an altitude of 1900 m. The long wings suggest that the species may be widespread.

***Trisunius cultellatus* ASSING 2011** (Map 2)

Material examined: China: 1♂, 2♀♀, S-Shaanxi Micang Shan, 33 km S Hanzhong, 32°45'N, 106°53'E, 1360 m, stream valley, forest margin, litter and soil sifted, 15.VIII.2012, leg. Assing (cAss); 19 exs., S-Shaanxi Micang Shan, 30 km S Hanzhong, 32°46'N, 106°54'E, 1070 m, stream valley, litter and soil sifted, 15.VIII.2012,, leg. Schülke (cSch).

Comment: The previously known distribution of *T. cultellatus* was confined to several localities in Yunnan (ASSING 2011). The above records considerably expand the range of the species northeastwards (Map 2).

Updated catalogue of the species of *Trisunius*

species	distribution
alesi ASSING 2012	E-Nepal
appendiculatus ASSING 2011	China: W-Yunnan (Gaoligong Shan)
borailicus nov.sp.	NE-India: Assam
cultellatus ASSING 2011	China: Yunnan (Bangma Shan, Gaoligong Shan, Ailao Shan, Mao Jiao Shan); Shaanxi: Micang Shan
discrepans ASSING 2011	China: W-Yunnan (Gaoligong Shan, Diancang Shan)
iaculatus ASSING 2011	China: Yunnan (Bangma Shan, Nu Shan, Gaoligong Shan, Laobie Shan, Wuliang Shan, Ailao Shan)
ligulatus ASSING 2011	China: W-Yunnan (Gaoligong Shan, Nu Shan)
manasluensis ASSING 2012	Nepal: Manaslu
monticola (CAMERON 1931)	N-India (Uttaranchal, West Bengal, Sikkim); Nepal
opaciceps ASSING 2012	Nepal: Manaslu
perpusillus (COIFFAIT 1981)	Nepal: Kalingchok
schuelkei ASSING 2011	China: SW-Yunnan (Bangma Shan)
spathulatus ASSING 2011	China: SW-Yunnan (Bangma Shan, Laobie Shan, Ailao Shan, Wuliang Shan, Mekong valley)
tenuincisus nov.sp.	NE-India: Meghalaya
thaicus ASSING 2011	Thailand
truncatus ASSING 2011	China: W-Yunnan (Nu Shan, Laobie Shan, Gaoligong Shan)
volans nov.sp.	E-Nepal

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Zusammenfassung

Drei Arten der Gattung *Trisunius* ASSING 2011 (Subtribus Medonina) aus Nepal und Nordindien werden beschrieben und abgebildet: *Trisunius volans* nov.sp. (Ostnepal), *T. borailicus* nov.sp. (Indien: Assam) und *T. tenuincisus* nov.sp. (Indien: Meghalaya). Weitere Nachweise von drei Arten werden aus dem Himalaya und aus China gemeldet. Die derzeit bekannte Verbreitung von neun Arten wird anhand von Karten illustriert. Ein aktualisierter Katalog der 17 *Trisunius*-Arten wird erstellt.

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